

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for detecting a binding event between at least one binder and members of a receptor array, comprising the steps of:
 - (a) exposing a plurality of unbound receptors to at least one potential binder having an element being detectable by X-ray fluorescence to form at least one bound receptor;
 - (b) separating said bound receptor;
 - (b) (c) arraying the said bound receptors onto a substrate ~~exposing each member of the array that has already been exposed to at least one potential binder to X-ray radiation to induce an X-ray fluorescence signal from each member of the array now bound to at least one binder~~; and
 - (d) detecting an X-ray fluorescence signal generated by said detectable element in said bound members as a result of exposure to the X-ray radiation, the X-ray fluorescence signal originating from at least any binder now bound to any member of the array, hereby indicating that a binding event has occurred.
2. (original) The method of claim 1, wherein the receptor comprises at least one organic compound.
3. (original) The method of claim 1, wherein the receptor comprises at least one oligomer.
4. (original) The method of claim 1, wherein the receptor comprises at least one polymer.

5. (original) The method of claim 1, wherein the receptor is selected from the group consisting of esters, amines, imines, aldehydes, ketones, amides, ethers, olefins, halogenated organic molecules, antibodies, drugs, steroids, amino acids, nucleic acids, oligomers, oligonucleotides, oligosaccharides, oligopeptides, polyolefins, polyurethanes, polyesters, polycarbonates, polyamines, polyamides, halogenated polymers, polypeptides, polynucleotides, polysaccharides, nucleic acids, cell membrane receptors, viruses, cells, cellular membranes, and organelles.

6. (original) The method of claim 1, wherein the binder comprises at least one organic molecule.

7. (original) The method of claim 1, wherein the binder comprises at least one oligomer.

8. (original) The method of claim 1, wherein the binder comprises at least one polymer.

9. (original) The method of claim 1, wherein the binder comprises at least one metal ion.

10. (original) The method of claim 4, wherein the binder is selected from the group consisting of esters, amines, imines, aldehydes, ketones, amides, ethers, olefins, halogenated organic molecules, antibodies, drugs, hormones, steroids, amino acids, nucleic acids, oligomers, oligonucleotides, oligosaccharides, oligopeptides, polyolefins, polyurethanes, polyesters, polycarbonates, polyamines, polyamides, halogenated polymers, polypeptides, polynucleotides, polysaccharides, nucleic acids, metal ions, anions, complex ions, oxoanions, polyoxoanions, phosphate, organophosphates, sulfate, organosulfates, zirconate, agonists and antagonists for cell membrane receptors, toxins, enzymes, enzyme substrates, cofactors, and antibodies.

11. (currently amended) A method for detecting chemical binding between at least one binder and members of a receptor array, comprising the steps of:

- (a) exposing a plurality of unbound receptors to at least one untagged potential binder having an element detectable by X-ray fluorescence to form at least one bound receptor;
- (b) separating said bound receptor;
- (c) arraying the said bound receptors onto a substrate; and
- (e) thereafter exposing each member of the array that has already been exposed to at least one untagged potential binder to X-ray radiation to induce an X-ray fluorescence signal from each member of the array now bound to at least one untagged binder; and
- (d) detecting an X-ray fluorescence signal generated by said detectable element in said bound members resulting from exposure to the X-ray radiation from any member of the array where a binding event has occurred, thereby indicating that a binding event has occurred.

12. (previously presented) The method of claim 11, wherein the receptor comprises at least one organic compound.

13. (previously presented) The method of claim 11, wherein the receptor comprises at least one oligomer.

14. (previously presented) The method of claim 11, wherein the receptor comprises at least one polymer.

15. (previously presented) The method of claim 11, wherein the receptor is selected from the group consisting of esters, amines, imines, aldehydes, ketones, amides, ethers, olefins, halogenated organic molecules, antibodies, drugs, steroids, amino acids, nucleic acids, polyurethanes, polyesters, polycarbonates, polyamines, polyamides, halogenated polymers, polypeptides, polynucleotides, polysaccharides, nucleic acids, cell membrane receptors, viruses, cells, cellular membranes, and organelles.

16. (previously presented) The method of claim 11, wherein the binder comprises at least one organic molecule.

17. (previously presented) The method of claim 11, wherein the binder comprises at least one oligomer.

18. (previously presented) The method of claim 11, wherein the binder comprises at least one polymer.

19. (previously presented) The method of claim 11, wherein the binder comprises at least one metal ion.

20. (previously presented) The method of claim 11, wherein the binder is selected from the group consisting of esters, amines, imines, aldehydes, ketones, amides, ethers, olefins, halogenated organic molecules, antibodies, drugs, hormones, steroids, amino acids, nucleic acids, oligomers, oligonucleotides, oligosaccharides, oligopeptides, polyolefins, polyurethanes, polyesters, polycarbonates, polyamines, polyamides, halogenated polymers, polypeptides, polynucleotides, polysaccharides, nucleic acids, metal ions, anions, complex ions, oxoanions, polyoxoanions, phosphate, organophosphates, sulfate, organosulfates, zirconate, agonists and antagonists for cell membrane receptors, toxins, enzymes, enzyme substrates, cofactors, and antibodies.